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## P R E F A C E.

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**T**HE Society agreed on the 4th of December, 1805, in consequence of their Medal Dies having become unfit for work, that J. Flaxman, Esq. R. A. should be desired to furnish a design for a new Medal, on the principles suggested by the late James Barry, Esq.\* Mr. Flaxman most readily acceded to the request of the Society, and completed the model for the dies, which were executed in a style highly to the credit of G. F. Pidgeon, Esq. the artist. The Frontispiece to the present Volume, exhibits the obverse of the die, drawn from it with great elegance by Miss Maria Denman, and engraved by Anker Smith, A. R. A. This engraving was intended to have been inserted in the 24th Volume of the Society's Transactions, but was prevented by various incidental circumstances, and the superior manner in which it is now completed, will, it is presumed, be a sufficient apology for the delay.

The arrangements of the constituent parts of the present Volume, are upon a similar plan to the former; the various

\* This was a subject respecting which Mr. Barry was particularly anxious, and his sentiments on it are fully stated in the preface to the 19th Volume of Transactions.

subjects having been placed under the several classes into which the business of the Society is divided. The Premiums offered for the session commencing in October 1807, and the Rewards bestowed in the preceding May, are the first in order; these are followed by a list of the Rules and Orders of the Society, corrected pursuant to the several alterations which have been found expedient during the progress of the Society.

The Plantations of the Right Honourable the Earl of Fife, appear to answer the most sanguine expectations of their noble owner; and in the counties of Banff, Aberdeen, and Murray, are said to amount to above thirteen thousand acres. His Lordship has set an example highly worthy of imitation.

The unremitting attention of David Day, Esq. to his Plantations of Ash Trees, has produced proofs of the great emolument arising to the owner from planting Ash Trees in a proper manner; and probably no means can be pointed out of a more certain and valuable property being raised with less trouble and more pleasure, than by the method he has here shown, and confirmed by long practice.

The Chinese method of propagating Fruit Trees by abscission, will be found deserving of trial in this climate; and there is much reason to suppose it would in many cases be followed with great success.

Great

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Great deceptions have been practised by the purchasers of growing Timber from the planter, who, in some instances, have bought it for half the real value; the instrument, invented by Mr. Broad, for the Measurement of growing Timber, will render it easy for the value to be better ascertained by the proprietors of plantations.

The advantages of Irrigation of Land, where there is a command of water, has been fully shown in the former volumes of the Society's Transactions. The adjustment of the proper level to allow it to pass over the land, in a regular manner, is important; and the instrument invented by Mr. Drew is cheap and simple, and likely to conduce much to such improvements.

The Hatching of Chickens in Ovens has been pursued with success in Egypt for many centuries, and Mr. Reaumur, the celebrated French Academician, has strongly recommended the practice in Europe, and laid down many excellent rules for its accomplishment; but Mrs. D'Oyley has effected the raising of Poultry in a more certain and natural mode, which would afford an easy, pleasant, and profitable business, to many persons in the environs of London, and populous towns, and which might be attended to by females incapable of laborious employment.

Major Spencer Cochrane's Paper on the Growth of

Spring Wheat, and the Culture of Poppies, contains many useful-hints upon these subjects. When it is considered that excellent opium has been produced from poppies grown in England, that the seeds of the poppies are a useful substitute for almonds in emulsion, and good for other medicinal purposes; and that the oil expressed from the seeds is equally nutritious, and frequently imported from Holland as Florence oil, and sold here as such; many inducements will be found, particularly during the present state of public affairs, to encourage an extension of the culture of this valuable plant.

Under the Class of Chymistry, the account of Lord Ribblesdale's Ore of Zinc, will engage the attention of both natural and experimental philosophers; the mode by which it was accumulated in the caverns where now found, there may be some difficulty to explain; and the various uses to which it may be applied, will interest the painter, the chymist, and the metallurgist.

Within the period of less than a century, Great Britain imported most of her Earthen Ware from foreign countries; but the improvements in our potteries have now rendered these articles a great branch of our foreign exports, even to the countries which formerly supplied us. The German Crucibles, and the different vessels for chymical uses, have, however, still continued to be imported hither. The inven-  
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tion of Mr. Turrell will, probably, lead the way to our superiority in manufactures of chymical vessels.

The ingenious mode of Painting designed by Mrs. Hooker, in imitation of the ancient Grecian manner or encaustic painting, is curious and interesting; and the specimens she has produced, executed in this manner, display great ingenuity and effect.

Under the Class of Manufactures, Mr. Duff's invention for weaving Figured Work, has met with the approbation of many persons conversant in that line of business; and when it is considered, that the improvements in our machinery enable us to have advantages over all other nations in our foreign sales, we shall feel the necessity of giving encouragement to every invention that will contribute to maintain our superiority in commerce.

Under the head of Mechanics, the Society have paid uncommon attention to every thing likely to promote the interests of our navy; they are sensible that it demands the warm support of every man who wishes well to his country, and they are desirous of adding to its glory, comfort, and security.

The numerous accidents which occur in boats of common construction, have induced the Society to give their

Gold Medal to Mr. Wilson, for a Boat which possesses great advantages either in embarking or disembarking of troops, in affording succour to vessels in distress, or in preventing accidents from carrying too great a press of sail. It unites the powers of a secure sailing boat, with more room and greater expedition, than other boats which draw the same depth of water usually possess.

The Capstan, invented by Mr. Boswell, prevents the delay and danger attending the use of common capstans, and does not require the messenger, or cable, coiled round it, to be ever surged.

The loss of many valuable seamen by falling overboard, when ships are under way in the night, engaged the philanthropy of Mr. Shipley, the worthy founder of the Society, to invent a method of rendering them assistance in such a dangerous situation; and the adoption, on ship-board, of his Floating Light, would save the lives of many of this useful class of men.

The machine denominated by Mr. Daniel a Life Preserver when shipwrecked, has already been the means of preserving several persons from drowning. The small space it occupies when uninflated, its lightness and security, recommend it to notice; and when it is considered that a single person getting on shore by the use of one of them, might

might be the means of procuring safety for a whole ship's crew, as would probably have been the case if one had been on board when the Abergavenny East Indiaman was lost near Weymouth, this machine becomes an object of public attention.

To the late Lieutenant Bell, of the Royal Artillery, the Society are indebted for several useful mechanical inventions. One of which is the method of forming a connection betwixt a stranded vessel and the shore, by throwing a rope on shore by means of a shell from a mortar, as described in this and their tenth Volume. Various experiments were successfully made in this manner from a vessel in the Thames, in presence of a committee appointed by the Society; and in many cases the plan would be successful in rescuing the persons and valuable property on board from destruction.

The necessity of encouraging the Growth of Hemp for naval use, has not escaped the attention of the Society; who have experienced, that our possessions in Canada are well-calculated for its culture, but deficient in machinery for its preparation. The machine of Mr. Cleall's invention for easily procuring from the plant the seed in a state fit for growth, and the machine invented by Mr. Bond for breaking or separating the woody fibres from the filaments of the hemp, it is hoped will be the means of facilitating these ob-  
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jects ; and in furtherance thereof, the Society have ordered some extra copies of these papers to be printed for circulation gratuitously in Canada.

The unhappy situation of Climbing Boys employed in sweeping chimnies, has for several years induced the Society to attempt other means to effect the purpose ; and in the 23d volume of the Society's Transactions, it will be found, that the Gold Medal of the Society was given to Mr. Smart for the greatest number of chimnies cleansed by mechanical means, without the assistance of any person within the flue. Much praise is due to this gentleman for the unremitting attention he has paid to complete machinery effectual for general use ; and his machines are so perfected, as, in the opinion of the Society, to entitle him to the highest reward offered for implements and articles of this kind. For the Machine supposed next to his in merit, the Silver Medal has been given to Mr. Davis ; and it is with pleasure that the Society understand, that the use of these kinds of machines are extending to different parts of the kingdom, under the auspices of the friends to humanity.

Improvements in the Clock and Watch-making line are said to have been the basis from which most of the improvements of our machinery in manufactures have originated ; and  
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the British export trade of clocks and watches is of itself very considerable. Mr. Hardy's method of equalizing the long and short Arcs of Vibration in Time-keepers, Mr. S. Mendham's Watch Escapement, and Mr. Ward's Compensation Pendulum, will each be found to possess considerable merit.

For domestic uses, Mr. Collier's Portable Iron Stove for culinary purposes, or heating rooms, is safe, ingenious, and useful ; and the new Air-tight Door-hinge, invented by Mr. Furness, will procure warmth and comfort, and probably prevent disease.

Mr. Stass's Machine for closing Boots in a standing Posture, will prevent the disorders to which men employed in such businesses are liable from the pressure upon the stomach when working in the old method.

Mr. Gilbert Gilpin's Method of raising Coals from Mines deserves particular notice in the present crisis of public affairs, as it not only supersedes the use of hempen ropes to a very extensive degree, but has been proved to be more safe, commodious, and to work with less friction, and at less expense.

The means of facilitating the carriage of minerals and heavy articles throughout the different parts of the kingdom, is an object

object of importance, and Iron Rail-roads have been one of the advantageous plans, adopted on an extensive scale, for this purpose. Mr. Charles Le Caan's improvement of them is very ingenious and useful.

The repose of the night is frequently interrupted by the dread of housebreakers where a considerable property is at stake; the Door-pannels and Window-pannels, invented by Mr. Davis, will give a desirable security on such occasions.

Under the Class of Colonies and Trade, the Observations relative to the Encouragement of Herring Fisheries are very important. With a view to their extension, a translation of the Dutch placart or ordinance is inserted, to show the plan of their regulations for that fishery, styled by them *the principal mine and chief support of that country, and of the inhabitants therein*. A proper attention from the Government of our country would transfer this valuable mine from Holland, to become the property of our united empire.

From the East and West Indies the Society have received several curious and valuable seeds, and other articles. The account from Dr. Anderson of the flourishing state of the Royal Botanical Garden at St. Vincent, will be satisfactory  
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to all lovers of natural history, and probably tend to a connection and mutual supply of the plants in which either this country or that garden may be deficient.

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Having thus taken a cursory view of the contents of the present volume, it may be necessary to add, that such further communications as will tend to improve and increase the Arts, Manufactures, and Commerce of the united empire, will ever meet with the attention of the Society, and the names of the inventors recorded in a manner honourable to themselves and beneficial to the public.

The Society, on the present occasion, express their thanks to the several public bodies and individuals from whom they have received the sundry presents noted in the present Volume.

Additions to the Library of the Society, by presents of books relative to the general subject of Arts, Manufactures, and Commerce, would be greatly conducive to the object of this institution.

*The Society desire it to be clearly understood, that as a body they are not responsible for any opinion or representation of facts contained in the following pages. They have endeavoured only to compress, into a form more concise, such accounts as appeared to them too diffuse when received.*

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The annexed extensive List of Members will best explain the present flourishing state of the Society; and the session now commenced is employed in the investigation of various new communications of importance to the best interests of the united empire.

*Adelphi, London,*  
*Dec. 31, 1807.*